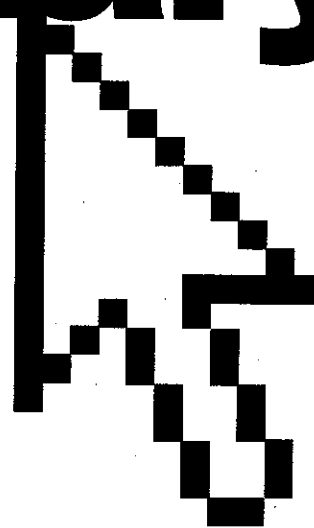


## **EXHIBIT E**

**Microsoft® Press**

Microsoft®  
**Computer  
Dictionary**  
Fourth  
Edition



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REF  
QA  
76.15  
M54  
1999

PUBLISHED BY  
Microsoft Press  
A Division of Microsoft Corporation  
One Microsoft Way  
Redmond, Washington 98052-6399

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Library of Congress Cataloging-in-Publication Data  
Microsoft Computer Dictionary. -- 4th ed.

p. cm.

Previous eds. published under title: Microsoft Press computer dictionary

ISBN 0-7356-0615-3

1. Computers Dictionaries. 2. Microcomputers Dictionaries.

I. Microsoft Press computer dictionary.

QA76.15.M538 1999

004'.03--dc21

99-20168

CIP

Printed and bound in the United States of America.

1 2 3 4 5 6 7 8 9 MLML 4 3 2 1 0 9

Distributed in Canada by ITP Nelson, a division of Thomson Canada Limited.

A CIP catalogue record for this book is available from the British Library.

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Acquisitions Editor: Christey Bahn  
Project Editor: Kim Fryer

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channel (definition 2), communications protocol, IEEE, ISDN, ISO/OSI model, LAN, modem, network, synchronous transmission. *Compare* data transmission, telecommunications, teleprocess.

**Communications Act of 1934** *n.* See FCC.

**communications channel** *n.* See channel (definition 2).

**communications controller** *n.* A device used as an intermediary in transferring communications to and from the host computer to which it is connected. By relieving the host computer of the actual tasks of sending, receiving, deciphering, and checking transmissions for errors, a communications controller helps to make efficient use of the host computer's processing time—time that might be better used for noncommunications tasks. A communications controller can be either a programmable machine in its own right or a nonprogrammable device designed to follow certain communications protocols. *See also* front-end processor (definition 2).

**communications link** *n.* The connection between computers that enables data transfer.

**communications network** *n.* See network.

**communications parameter** *n.* Any of several settings required in order to enable computers to communicate. In asynchronous communications, for example, modem speed, number of data bits and stop bits, and type of parity are parameters that must be set correctly to establish communication between two modems.

**communications port** *n.* See COM (definition 1).

**communications program** *n.* A software program that enables a computer to connect with another computer and to exchange information. For initiating communications, communications programs perform such tasks as maintaining communications parameters, storing and dialing phone numbers automatically, recording and executing logon procedures, and repeatedly dialing busy lines. Once a connection is made, communications programs can also be instructed to save incoming messages on disk or to find and transmit disk files. During communication, these types of programs perform the major, and usually invisible, tasks of encoding data, coordinating transmissions to and from the distant computer, and checking incoming data for transmission errors.

**communications protocol** *n.* A set of rules or standards designed to enable computers to connect with

one another and to exchange information with as little error as possible. The protocol generally accepted for standardizing overall computer communications is a seven-layer set of hardware and software guidelines known as the OSI (Open Systems Interconnection) model. A somewhat different standard, widely used before the OSI model was developed, is IBM's SNA (Systems Network Architecture). The word *protocol* is often used, sometimes confusingly, in reference to a multitude of standards affecting different aspects of communication, such as file transfer (for example, XMODEM and ZMODEM), handshaking (for example, XON/XOFF), and network transmissions (for example, CSMA/CD). *See also* ISO/OSI model, SNA.

**communications satellite** *n.* A satellite stationed in geosynchronous orbit that acts as a microwave relay station, receiving signals sent from a ground-based station (earth station), amplifying them, and retransmitting them on a different frequency to another ground-based station. Initially used for telephone and television signals, communications satellites can also be used for high-speed transmission of computer data. Two factors affecting the use of satellites with computers, however, are propagation delay (the time lag caused by the distance traveled by the signal) and security concerns. *See also* downlink, uplink.

**communications server** *n.* A gateway that translates packets on a local area network (LAN) into asynchronous signals, such as those used on telephone lines or in RS-232-C serial communications, and allows all nodes on the LAN access to its modems or RS-232-C connections. *See also* gateway, RS-232-C standard.

**communications slot** *n.* On many models of the Apple Macintosh, a dedicated expansion slot for network interface cards. *Acronym:* CS.

**communications software** *n.* The software that controls the modem in response to user commands. Generally such software includes terminal emulation as well as file transfer facilities. *See also* modem, terminal emulation.

**communications system** *n.* The combination of hardware, software, and data transfer links that make up a communications facility.

**Communications Terminal Protocol** *n.* A terminal protocol that enables a user at a remote location to access a computer as if the remote computer were

converter

copy

ASCII values, and decimal-to-hexadecimal tables. Several conversion tables are in Appendixes A–E.

**converter** *n.* Any device that changes electrical signals or computer data from one form to another. For example, an analog-to-digital converter translates analog signals to digital signals.

**converter box** *n.* See converter.

**cookbook**<sup>1</sup> *adj.* Of, pertaining to, or characteristic of a book or manual that presents information using a step-by-step approach. For example, a cookbook approach to programming might present a series of sample programs that the reader could analyze and adapt to his or her own needs.

**cookbook**<sup>2</sup> *n.* A computer book or manual that presents information using a step-by-step approach. Most often, *cookbook* refers to a programming guide, but it can refer to a book that shows how to accomplish specialized tasks in an application.

**cooked mode** *n.* One of two forms (the other being raw mode) in which an operating system such as UNIX or MS-DOS “sees” the handle, or identifier, for a character-based device. If the handle is in cooked mode, the operating system stores each character in a buffer and gives special treatment to carriage returns, end-of-file markers, and linefeed and tab characters, sending a line of data to a device, such as the screen, only after it reads a carriage-return or end-of-file character. In cooked mode, characters read from standard input are often automatically echoed (displayed) on the screen. Compare raw mode.

**cookie** *n.* 1. A block of data that a server returns to a client in response to a request from the client. 2. On the World Wide Web, a block of data that a Web server stores on a client system. When a user returns to the same Web site, the browser sends a copy of the cookie back to the server. Cookies are used to identify users, to instruct the server to send a customized version of the requested Web page, to submit account information for the user, and for other administrative purposes. 3. Originally an allusion to “fortune cookie,” a UNIX program that outputs a different message, or “fortune,” each time it is used. On some systems, the cookie program is run during user logon.

**cookie filtering tool** *n.* A utility that prevents a cookie on a Web browser from relaying information about the user requesting access to a Web site. See also cookie (definition 2).

**cooperative multitasking** *n.* A type of multitasking in which one or more background tasks are given processing time during idle times in the foreground task only if the foreground task allows it. This is the primary mode of multitasking in the Macintosh operating system. See also background<sup>1</sup>, context switching, foreground<sup>1</sup>, multitasking, time slice. Compare preemptive multitasking.

**cooperative processing** *n.* A mode of operation characteristic of distributed systems in which two or more computers, such as a mainframe and a microcomputer, can simultaneously carry out portions of the same program or work on the same data. Compare distributed processing.

**coordinate** *n.* Any element in a group of references to a particular location, such as the intersection of a certain row and column. In computer graphics and displays, coordinates specify such elements as points on a line, the corners of a square, or the location of a pixel on the screen. In other computer applications, coordinates specify cells on a spreadsheet, data points on a graph, locations in memory, and so on. See also Cartesian coordinates, polar coordinates.

**coordinate dimensioning** *n.* A form of spatial positioning in which a point is described, relative to a fixed reference, in terms of its distance and direction along predefined axes. See also Cartesian coordinates, three-dimensional model, two-dimensional model.

**coordinated universal time format** *n.* See Universal Time Coordinate.

**copper chip** *n.* A microprocessor that uses copper (rather than the more common aluminum) to connect transistors in a computer chip. Copper chip technology, which was developed by IBM and introduced in 1997, can be expected to boost the speed of a microprocessor by as much as 33 percent.

**coprocessor** *n.* A processor, distinct from the main microprocessor, that performs additional functions or assists the main microprocessor. The most common type of coprocessor is the floating-point coprocessor, also called a numeric or math coprocessor, which is designed to perform numeric calculations faster and better than the general-purpose microprocessors used in personal computers. See also floating-point processor.

**copy** *vb.* To duplicate information and reproduce it in another part of a document, in a different file or memory location, or in a different medium. A copy



coulomb

CPU

determine such things as whether purchasing a new computer system is a good investment or whether hiring more staff is necessary. *See also* IS, MIS.

**coulomb** \koo'lom, koo'lom \n. A unit of electrical charge equivalent to roughly  $6.26 \times 10^{18}$  electrons, with a negative charge being an excess of electrons and a positive charge being a deficiency of electrons.

**counter** n. 1. In programming, a variable used to keep count of something. 2. In electronics, a circuit that counts a specified number of pulses before generating an output. 3. A device that keeps track of the number of visitors to a World Wide Web site.

**counting loop** n. In a program, a group of statements that are repeated, thereby incrementing a variable used as a counter (for example, a program might repeat a counting loop that adds 1 to its counter until the counter equals 10). *See also* loop<sup>1</sup> (definition 1).

**country code** n. *See* major geographic domain.

**country-specific** adj. Of, pertaining to, or characteristic of hardware or software that uses characters or conventions unique to a particular country or group of countries. *Country-specific* does not necessarily refer to spoken languages, although it does allow for special characters (such as accent marks) that are language-specific. Generally, the features considered country-specific include keyboard layout (including special-character keys), time and date conventions, financial and monetary symbols, decimal notation (decimal point or comma), and alphabetic sorting order. Such features are handled either by a computer's operating system (for example, by the Keyboard and Country commands in MS-DOS) or by application programs that offer options for tailoring documents to a particular set of national or international conventions.

**courseware** n. Software dedicated to education or training.

**courtesy copy** n. *See* cc.

**CPA** n. *See* Computer Press Association.

**cpi** n. *See* characters per inch.

**CP/M** n. Acronym for Control Program/Monitor. A line of operating systems from Digital Research, Inc., for microcomputers based on Intel microprocessors. The first system, CP/M-80, was the most popular operating system for 8080- and Z80-based microcomputers. Digital Research also developed CP/M-86 for 8086/8088-based computers, CP/M-Z8000 for

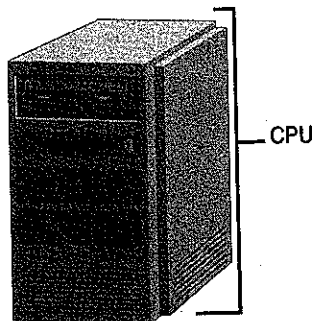
Zilog Z8000-based computers, and CP/M-68K for Motorola 68000-based computers. When the IBM PC and MS-DOS were introduced, common use of CP/M by end users dwindled. DRI continues to enhance the CP/M line, supporting multitasking with the Concurrent CP/M and MP/M products. *See also* MP/M.

**CPM** n. *See* critical path method.

**cps** n. *See* characters per second.

**CPSR** n. Acronym for Computer Professionals for Social Responsibility. A public advocacy organization of computer professionals. CPSR was originally formed out of concern over the use of computer technology for military purposes but has extended its interest to such issues as civil liberties and the effect of computers on workers.

**CPU** n. Acronym for central processing unit. The computational and control unit of a computer. The CPU is the device that interprets and executes instructions. Mainframes and early minicomputers contained circuit boards full of integrated circuits that implemented the CPU. Single-chip central processing units, called *microprocessors*, made possible personal computers and workstations. Examples of single-chip CPUs are the Motorola 68000, 68020, and 68030 chips and the Intel 8080, 8086, 80286, 80386, and i486 chips. The CPU—or microprocessor, in the case of a microcomputer—has the ability to fetch, decode, and execute instructions and to transfer information to and from other resources over the computer's main data-transfer path, the bus. By definition, the CPU is the chip that functions as the "brain" of a computer. In some instances, however, the term encompasses both the processor and the computer's memory or, even more broadly, the main computer console (as opposed to peripheral equipment). *See* the illustration. *See also* microprocessor.



CPU.

and encased in a rigid plastic shell equipped with a sliding metal cover. On the Macintosh, a single-sided microfloppy disk can hold 400 kilobytes (KB); a double-sided (standard) disk can hold 800 KB; and a double-sided high-density disk can hold 1.44 megabytes (MB). On IBM and compatible machines, a microfloppy can hold either 720 KB or 1.44 MB of information. *See also* floppy disk.

**microform** *n.* The medium, such as microfilm or microfiche, on which a photographically reduced image, called a *microimage*, is stored. A microimage usually represents text, such as archived documents. *See also* microfiche, microfilm.

**micrographics** *n.* The techniques and methods for recording data on microfilm. *See also* microform.

**microimage** *n.* A photographically reduced image, usually stored on microfilm or microfiche, that is too small to be read without magnification. *See also* microform, micrographics.

**microinstruction** *n.* An instruction that is part of the microcode. *See also* microcode.

**microjustification** *n.* *See* microspace justification.

**microkernel** *n.* 1. In programming, the strictly hardware-dependent part of an operating system that is intended to be portable from one type of computer to another. The microkernel provides a hardware-independent interface to the rest of the operating system, so only the microkernel needs to be rewritten to port the operating system to a different platform. *See also* kernel, operating system. 2. A kernel that has been designed with only the basic features and typically in a modular fashion.

**micrologic** *n.* A set of instructions, stored in binary form, or a set of electronic logic circuits that defines and governs the operation within a microprocessor.

**microminiature** *n.* An extremely small circuit or other electronic component, especially one that is a refinement of an already miniaturized element.

**microphone** *n.* 1. A device that converts sound waves into analog electrical signals. Additional hardware can convert the microphone's output into digital data that a computer can process; for example, to record multimedia documents or analyze the sound signal. 2. A communications program that runs on the Macintosh computer.

**microprocessor** *n.* A central processing unit (CPU) on a single chip. A modern microprocessor can have

several million transistors in an integrated-circuit package that can easily fit into the palm of one's hand. Microprocessors are at the heart of all personal computers. When memory and power are added to a microprocessor, all the pieces, excluding peripherals, required for a computer are present. The most popular lines of microprocessors today are the 680x0 family from Motorola, which powers the Apple Macintosh line, and the 80x86 family from Intel, which is at the core of all IBM PC-compatible computers. *See also* 6502, 65816, 6800, 68000, 68020, 68030, 68040, 80286, 80386DX, 80386SX, 8080, 8086, 8088, 88000, DECchip 21064, i486DX, i486DX2, i486SL, i486SX, Pentium, PowerPC, SPARC, Z80.

**microprogramming** *n.* The writing of microcode for a processor. Some systems, chiefly minicomputers and mainframes, allow modification of microcode for an installed processor. *See also* microcode.

**microsecond** *n.* Abbreviated  $\mu$ s. One millionth ( $10^{-6}$ ) of a second.

**Microsoft DOS** *n.* *See* MS-DOS.

**Microsoft Foundation Classes** *n.* A C++ class library developed by Microsoft. The Microsoft Foundation Class library, or MFC, provides the framework and classes that make it easier and faster for programmers to build Windows applications. MFC supports ActiveX and is bundled with several C++ compilers, including Microsoft Visual C++, Borland C++, and Symantec C++. *Acronym:* MFC. *See also* ActiveX, C++. *Compare* Application Foundation Classes.

**Microsoft Internet Explorer** *n.* *See* Internet Explorer.

**Microsoft Network** *n.* *See* MSN.

**Microsoft Windows** *n.* *See* Windows.

**Microsoft Windows 2000** *n.* *See* Windows 2000.

**Microsoft Windows 95** *n.* *See* Windows 95.

**Microsoft Windows 98** *n.* *See* Windows 98.

**Microsoft Windows CE** *n.* *See* Windows CE.

**Microsoft Windows NT** *n.* *See* Windows NT.

**microspace justification** *n.* The addition of thin spaces between characters within words to fill out a line for justification, instead of relying only on adding space between words. Good microspace justification gives justified text a more polished, professional look; excessive microspace justification causes words to lose visual coherence. *Also called* microjustification. *See also* justify (definition 2), microspacing.